

**REMARKS**

The Office Action and cited references have been considered. Claims 39-55, 57-62 and 72 are pending in the present application, claims 39, 42, and 61 having been amended herein, and claims 56 and 63-71 having been cancelled without prejudice or disclaimer of Applicants' right to re-file the claims in a divisional application. The claims define patentable subject matter and should be allowed. Favorable reconsideration is respectfully requested.

**Amendments to the claims**

Currently amended claim 39 is a combination of the features of previously presented claim 39 and previously presented claim 56. In addition, the last feature of currently amended claim 39 specifies that the recess (5) mentioned there is the recess of the measuring head of the apparatus. Further, currently amended claim 39 specifies that the sample vessel (8) mentioned there contains the liquid to be examined.

Claims 40 to 55 remain unchanged compared to the last submitted set of claims.

Claim 56 now is canceled.

Claims 57 to 61 remain unchanged compared to the last submitted set of claims.

In currently amended claim 62, additional steps explaining the examination procedure are added. These steps originally were disclosed on page 7, lines 23 to 27 of the specification of the application. Also these steps are explained in the detailed description of the examination procedure starting in the original specification, page 14, line 18.

Claims 63 to 71 are canceled.

**Election / Restrictions**

Claims 63-71 were withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention. Further to the previous election of claims 39-62 and 72, Applicants cancelled the non-elected claims 63-71 without prejudice or disclaimer of Applicants' right to re-file the claims in a divisional application.

**Claim Rejections under 35 USC § 112**

Claim 62 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim subject matter of the claimed invention. Applicants have amended claim 62 to address the issue raised by the Examiner. In particular, claim 62 has been amended to include steps of titration analysis in the course of the claimed method. Applicants therefore submit that claim 62 now includes a sufficient basis for the claimed examination of a liquid sample by titration. Withdrawal of this rejection is respectfully requested.

**Claim Rejections under 35 USC § 103**

Claims 39-62 and 72 were rejected as being unpatentable over U.S. Patent No. 5,402,241, Jeannotte et al., (“US ‘241”) in view of U.S. Patent No. 5,181,082, Jeannotte et al., (“US ‘082”).<sup>1</sup> The rejection is respectfully traversed.

US ‘241 discloses a couple of examples of an optical probe with similar operation principle for sensing fluid characteristics optically. For example, as shown in Figure 2 of US ‘241, light emitted from a light source is guided via an optical fiber 20 and then reflected by reflecting surfaces 17 to travel through a vessel 18 in a tube 25, in which the liquid to be measured is contained. After passing the tube 25, the light is guided to a measurement device through a second optical fiber 21. A port 30 shown in Figure 5 of US ‘241 serves as an exit port for the sample fluid (US ‘241, column 6, lines 61 - 66). As another example, Figure 7 of US ‘241 shows a sample vessel 50 and a measuring head 48 having a sample chamber 18 and optical fibers as described above. This measuring head 48 is rigidly connected to the vessel 50 via screws 51.

The Examiner admits that US ‘241 does not disclose or teach a titration application of the optical probe disclosed in US ‘241. However, the Examiner states that Abstract of US ‘082 discloses use of a titration analyzer. Accordingly, the Examiner asserts the combination of US ‘241 and US ‘082 would have rendered the present Application obvious to one of ordinary skill in the art. Applicants respectfully disagree.

US ‘082 discloses a titration analysis device with the optical probe described in US ‘241. As shown in Figure 16 of US ‘082, optical probe 100, which corresponds to the

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<sup>1</sup> Applicant notes that the Office Action refers to the references both as Jeannotte et al. This is confusing; if this rejection is repeated, the Office is requested to refer to the references by their patent numbers so that it can be readily determined to which patent reference is being made.

optical probe of US'241, is mounted on a titration vessel 110 to optically sense coloration of a liquid sample and return an optical measurement signal to the titration analysis device. See, US'082, column 13, lines 17-22.

However, US'082 explicitly states the optical probe “is adapted for permanent mounting on a vessel, such as a process vessel or storage vessel [.]” This feature is also clearly illustrated in Figures 7, 16, 17, and 18, where it can be seen that the optical probe (element 48 in Figure 7 and element 100 in Figures 16, 17, and 18) is fixed in the titration vessel (element 50 in Figure 7 and element 110 in Figures 16, 17, and 18). There is no disclosure or suggestion in US'241 and US'082 of a drive device for moving the measuring head, *i.e.*, the optical probe, relative to the sample vessel, *i.e.*, the titration vessel.

The Examiner asserts that the “mount adaptable probe disclosed in line 51 of column 8” anticipates the claimed drive device. Applicants respectfully disagree. Column 8, lines 50-51 states “[t]he simplified optical probe 48 of FIG. 7 is adapted for **permanent** mounting on a vessel ....” One of ordinary skill in the art would understand 1) a permanent mounting means fixedly mounted on the vessel, without a drive means to move the probe relative to the sample vessel; and 2) the portion of US'241 teaches away from the use of a drive device for moving the probe relative to the sample vessel, as recited in claim 39.

Thus, it would be clear to one of ordinary skill in the art that the titration measurement described in US'082 is conducted without any relative motion between the optical probe 100 and the titration vessel 110, particularly since the change of color of the liquid sample that occurs as a result of the titration process is measured. Since US'241 also does not disclose or teach the feature of relative motion between an optical probe and an titration vessel, US'241 and US'082, either considered independently or combined, does not

disclose or teach a drive device “moving the measuring head (1) relative to a sample vessel (8) containing the liquid sample,” as recited in independent claim 39.

Further, neither US '241 nor US '082 discloses or teaches that a determining device being provided for determining the liquid level of the titration sample and that the optical probe 100 is part of such a determining device. Therefore, US '241 and US '082, either considered independently or combined, also does not disclose or teach “at least a part of a determining device (2, 3, 5, 6.1, 6.2, 12, 13) being provided for determining a liquid level of the liquid sample,” as recited in independent claim 39.

The Examiner also asserts that the ports disclosed in column 6, line 68 correspond to Applicants' claimed recess in the measured head. Applicants respectfully disagree. The ports disclosed in US '241 (and US '082) with respect to the optical probes 48, 100 are part of the fluid passage way of the liquid sample to be measured and therefore serve a different function than the claimed recess (5).

For at least these reasons, Applicants respectfully submit that claim 39 is patentable over US '241 and US '082.

Accordingly, claims 40-62 and 72 are also patentable over the prior art of record whether taken alone or in combination as proposed in the Office Action. For example, with respect to instant claim 46, the Examiner alleges that Figure 16-18 of US '082 discloses a probe “lowered into a vessel located beneath it”. It is true, that Figure 16 to 18 of US '082 show a titration analyzing system having a sample vessel 110 for receiving a fluid sample below the mounting position of the optical probe 100. However, as set forth above, US '082 does not disclose that optical probe 100 can be lowered into titration vessel 100. Instead, the optical probe 100 is shown as being rigidly mounted to a cover of the titration

Appln. No. 10/580,028  
Amdt. dated March 11, 2009  
Reply to Office Action of December 11, 2008

vessel 110. The titration method as disclosed by US'082 works irrespective of a relative movement of the optical probe 100 to the titration vessel 110. Therefore, lowering of the optical probe 100 into the titration vessel 110 is not taught by US'082, and the vessel in US '082 is not "lower than the probe" as recited in claim 46.

**Conclusion**

In view of the above amendment and remarks, Applicant respectfully requests reconsideration and withdrawal of the outstanding rejections of record. Applicant submits that the application is in condition for allowance and early notice to this effect is most earnestly solicited.

If the Examiner has any questions, he is invited to contact the undersigned at 202-628-5197.

Respectfully submitted,

BROWDY AND NEIMARK, P.L.L.C.  
Attorneys for Applicant(s)

By /Ronni S. Jillions/  
Ronni S. Jillions  
Registration No. 31,979

RSJ:HL/ma  
Telephone No.: (202) 628-5197  
Facsimile No.: (202) 737-3528  
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